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A home made of wood: Consumer experiences of wooden building materials

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Abstract

Having a home is a central part of the everyday consumer experience. In our study, we focus on Finnish homeowners who have recently bought an apartment in a multi-family timber-framed building. With its merits in sustainability, the number of timber buildings in less-traditional urban applications is increasing, yet, research on living in a wooden home is scarce. To fill this gap, the study analyses how homeowners perceive the wooden material before and after living in a wooden home for one year. Thus, besides the acquisition of a home, the study examines the consumers' appropriation processes and aims to gain insight into the cultural sense-making behind the appreciation of wooden homes. The results of this qualitative study indicate that traditions and memories related to wood affect consumers' appreciations, for example, regarding the cosiness of a wooden home. The consumers discussed the weaknesses assigned to wood, such as fire and moisture susceptibility, yet, they considered them to concern all construction materials, not only wood. After habitation for one year, the usability of the home becomes particularly relevant, including the ease with which shelves can be mounted onto the walls, enjoying the echoless soundscape, and living with clicking sounds and vibrating floors. The study suggests that the meanings of consumers' daily experiences concerning the usability of wooden buildings are under negotiation and cannot be reduced simply into positive or negative but carry elements of both.

KEYWORDS

appreciation, appropriation, home, housing, material, wood

1 | INTRODUCTION

The home is an integral part of human life and everyday experiences. Home refers to a private (Vanzella-Yang, 2019) and physical place that provides shelter, psychological comfort and familiarity (Scott, 2009). Home is also a commodity and it carries economic value, especially for those who invest financial resources into their own apartment or a house. Others lack physical shelter, for example due to economic constraints, and are interpreted as homeless (Kellett & Moore, 2003). Having a home is also a practical matter with cultural constraints that affect people when modifying their houses (Wilk, 2001, p. 135). For example, consumers make material choices concerning interior decoration such as the acquisition of parquet flooring, furniture or kitchen cabinets. Yet, the material of the building itself also has meaning for consumers.

In this study, we focus on wood as the building material. Wood is a traditional building material of single-family and vacation homes, especially in the Nordic countries. However, concrete and steel are dominating materials in urban environments, with which we mean city areas with primarily multi-storey buildings, even though the number of multi-storey wooden structures is increasing (e.g., Gosselin, Blanchet, Lehoux, & Cimon, 2017). This increase is mainly due to the need to reduce environmental impacts of the construction sector. For example, Hildebrandt et al. (2017) have argued that the increased use of engineered wood products may contribute to a shift towards more carbon emission-efficient production of construction materials. In Finland, the market share of wooden multi-storey constructions has remained under 10% during recent years (Hurmekoski, Pykäläinen, & Hetemäki, 2018), yet, the use of wood in urban multi-storey applications is promoted by the Finnish Government, for example, through the ongoing Wood Building Programme (Ministry of the Environment, 2019). Such novel technologies do play their role in constituting sustainable everyday life, however, why a particular technology is chosen, how it is deployed, how it is interpreted at a local level and how its material infrastructure is appropriated, requires understanding the processes of various actors (Shaw & Ozaki, 2016, p. 238), including consumers.

Research on wood as a housing material has concentrated on wood use in interiors and furniture (e.g., Hakala, Autio, & Toppinen, 2015; Scrinzi, Rossi, Deflorian, & Zanella, 2011) along with it being a possible solution for moisture and air quality problems in housing (Burnard & Kutnar, 2015; Nyrud & Bringslimark, 2010). Consumer views of wood material use in urban timber-framed residential buildings are gaining increasing scholarly interest (Gold & Rubik, 2009; Høibø, Hansen, & Nybakk, 2015; Hu, Dewancker, Zhang, & Wongbumru, 2016; Larasatie et al., 2018; Luo, Kanzaki, & Matsushita, 2017). In the Finnish context, Lähtinen, Harju, and Toppinen (2019) found that consumers appreciate ecological, physio-technological, aesthetic and well-being aspects of wood as an urban construction material. While homeowners can rarely influence the structural material used in multi-family buildings, understanding consumer perceptions is valuable for the decision-making processes, especially when novel building materials and methods are being introduced (Høibø et al., 2015).

How consumers perceive wood when they have lived in a timber-framed home and gained experiences of the material itself has not been previously studied. In our study, we aim to fill this research gap and address the research questions of how Finnish homeowners appreciate wood as a building material and how they appropriate the wooden building materials in their homes into their use. To this end, we analyse the meanings homeowners give to wooden materials and how they negotiate the various qualities of wooden materials in their everyday lives. We are interested in how residents interact with a new home (see also Rinkinen & Jalas, 2016). Therefore, besides researching the acquisition of a home, we also examine the consumers' appropriation processes and appreciations for the wooden material (Evans, 2019; Warde, 2014). Thus, we contribute to the literature of consumer housing experiences and extend the prevailing understanding of consumer perceptions of urban wooden buildings from general opinions towards homeowner experiences.

2 | WOOD AS AN URBAN HOUSING MATERIAL AND CONSUMPTION PROCESSES OF HOMEMAKING: ACQUISITION, APPROPRIATION AND APPRECIATION

The homemaking process belongs to the manifold phenomenon of housing consumption: it includes, for example, purchasing a home as a service, household finances, engagement with materials, meanings of neighbourhoods, ecological sustainability, the formation of heating practices, technical functions and families' everyday life settings (Klaufus & van der Horst, 2009; Rinkinen & Jalas, 2016). We approach wooden housing within the theoretical framework of three sets of consumption processes, namely acquisition, appropriation and appreciation (Evans, 2019; Warde, 2005, 2014), combined with previous consumer studies on wooden multi-storey buildings. The theoretical perspective aims to gain understanding of the locally constructed domestic lived-in experiences; it enriches those endeavours that focus on multiple actors on a systemic level (Macrorie, Foulds, & Hargreaves, 2015; Shaw & Ozaki, 2016).

Acquisition processes refer to exchange and the ways, in which people access the goods, services and experiences they consume (Evans, 2019). During the processes of *appropriation and appreciation*, consumers create relationships with goods, services, performances, information or ambience: their participation in this process is not dependent on purchase and/or ownership if they have some degree of discretion (Warde, 2005, p. 137). Or, as Sassatelli (2007, pp. 101–102) observes, the moment of purchase is only the beginning of a complex process, in which consumers make those resources that they have acquired on the market their own––decontextualizing commodities.

The idea of appropriation emphasizes use: what people do with goods, services and experiences after they have acquired them and how people give them meanings and incorporate them into everyday living to serve practical purposes (Warde, 2014, p. 284). For Gram-Hanssen (2011, p. 66), appropriation is domestication: it deals with how people relate to new things and technologies. The notion of appropriation demonstrates that consumption is grounded in personal relationships and social institutions, which transform commodities and their meanings (Sassatelli, 2007, p. 160). Instead, appreciation is defined as the ways in which people derive pleasure and satisfaction from consumption, considering moral, social and aesthetic judgements, while the loss of cultural meaning may lead to symbolic failure (devaluation) (Evans, 2019). As Wilk (2001, p. 135) argued, people shape their houses, and in doing so are informed about cultural knowledge and act within cultural constraints.

Previous studies on consumers and wood in urban housing have mainly shed light either on the acquisition processes, that is, purchase behaviour-related questions (e.g., willingness to pay premiums, consumer attitudes) (e.g., Hu at al., 2016; Lähtinen et al., 2019; Luo, Mineo, Matsushita, & Kanzaki, 2018) or appreciations and devaluations related to wooden material (e.g., assigned meanings and perceptions) (e.g., Gold & Rubik, 2009; Karjalainen, 2002). These studies have found, for example, that residents appreciate the cosy and pleasant atmosphere of wooden multi-storey buildings and the good indoor air quality of their apartments (Karjalainen, 2002). As an indoor material, wood is appreciated as a natural material (Nyrud & Bringslimark, 2010). In the U.S. Pacific Northwest, tall wooden buildings are believed to be more aesthetically pleasing, to create a positive living environment and to utilise renewable materials, compared with concrete and steel (Larasatie et al., 2018). Similarly, Gold and Rubik (2009) found that German consumers appreciate the well-being, aesthetics and eco-friendliness of wooden buildings.

However, the U.S. Pacific Northwest public also associates wooden materials with higher maintenance costs (Larasatie et al., 2018) and both German and Chinese consumers are persistently uncertain about the fire resistance, durability and stability of wood as an urban construction material (Gold & Rubik, 2009; Hu et al., 2016). Furthermore, in Norway, concrete is considered a structurally sound building material when compared with wood (Høibø, Hansen, Nybakk, & Nygaard, 2018). Thus, wood as a natural material also carries negatively charged meanings (e.g., fire safety issues, high maintenance) that may activate the devaluation processes of consumers. However, these studies have often been detached from the use experiences of residents.

These aforementioned meanings and perceptions assigned to wood, which are derived from the processes of appreciation and devaluation, are echoed in the acquisition processes. For example, in the context of green hotels, Luo et al. (2017) found that the avoidance of wooden structures guided the decision making of Chinese "wood structure sceptics" more than price did. Further, Gold and Rubik (2009) noted that while consumers may rank so-called soft criteria (e.g., well-being, aesthetics and eco-friendliness) as important in their decision making, these are not sufficient for generating interest towards wood as a construction material. Wooden buildings, they argue, should fulfil the basic quality requirements set for any building such as resale value. As Savolainen (2009) noted, purchasing a home is one of the largest lifetime financial investments made by a household.

Finally, according to Gold and Rubik (2009), Høibø et al. (2015) and Larasatie et al. (2018), consumers with insufficient experience and knowledge about wood as an urban construction material in their own homes is one of the main challenges related to consumer acceptability. In fact, as Høibø et al. (2018) found when studying Norwegian urban dwellers, consumers who prefer urban living prefer concrete and steel to wood as a construction material, perhaps because they have no experience of living with wood. Even though wood is a traditional housing material and serves also other important purposes in households (such as a heating material, see e.g., Jalas & Rinkinen, 2016), wood is concurrently a new material (e.g., engineered wood, cross-laminated timber) for urban dwellers in the multi-storey construction context.

3 | DATA AND METHODS

We chose a qualitative approach to understand the various meanings consumers relate to wooden materials, while earlier literature has focused more on revealing consumer perceptions and attitudes of wooden materials using quantitative methods (e.g., Høibø et al., 2015; Lähtinen et al., 2019). Thus, our approach is based on an interpretive methodology by focusing on the everyday contexts of consumer behaviour (Moisander, Närvänen, & Valtonen, 2020). We interviewed consumers who had bought an apartment from a new two-storey building with a wooden frame with 14 apartments. The interviews were executed twice to gain understanding of the homeowners' appropriation processes and developing experiences.

The building is located in a medium-sized city in Finland (20,000–100,000 inhabitants). Except for its wooden frame and novel techniques used, namely a wooden intermediate floor and wood-based wall surfaces, it is quite similar to other buildings in the area. The structural material was not highly emphasized in the marketing of the apartments. The interiors of the apartments look similar to those in concrete-frame buildings, as the design follows the current trend of white and crisp colours and modern details. This is also due to Finnish fire regulations, which limit the use of wood in visible elements within the apartments. The wooden façade, balconies, corridors and staircase are the main visible indication of the building's structural material. Therefore, only day-to-day living in the apartments can reveal the differences between wood and other materials to the homeowners.

Using semi-structured interviews, we first interviewed the consumers before they moved into their new apartments, with a focus on their purchase decision, expectations of their new homes and perceptions of wooden materials (focus on acquisition and appreciation, Appendix 1). Second, we interviewed them after one year of habitation, now focusing on their experiences of living in the wooden building (Appendix 2). Thus, we were able to analyse how their understanding of the apartment and wooden material broadened during the one-year period (focus on appropriation and appreciation).

We recruited seven new homeowners in the first phase, five of which were re-interviewed during the second phase. Two interviewees were unavailable for the second-stage interviews, but we were able to recruit one new interviewee. All interviews lasted between 30 and 60 min (Table 1). Additionally, the second-stage face-to-face interviews were conducted in the homes of the interviewees, which helped them describe their experiences with the wooden materials. The interviews were recorded and the recordings were transcribed. An overview of the interviews is provided in Table 1.

TABLE 1 Data of interviews

Interviewee	*F* = Female/*M* = Male, age	Interview round 1 spring 2017	Interview round 2 spring 2018
1	F, 29	Phone	Phone
2	M, 50	Face-to-face	Face-to-face
3	F, 40	Face-to-face	–
4	F, 41	Face-to-face	–
5	F, 58	Face-to-face	Face-to-face
6	M, 32	Phone	Face-to-face[a], spouse
7	F, 28	Phone	Face-to-face[a], spouse
8	F, 31	–	Phone

[a]Joint interview with spouse

The analysis aims to understand the qualities that consumers assign to wooden materials and how they discuss wood through their everyday living experiences as residents. The interviews were initially analysed based on the structure of the semi-structured interview guide, comparing interviewee descriptions before moving into the apartments and after one year of living experience.

4 | RESULTS AND DISCUSSION

In the results section, we discuss the data set through separating meanings assigned to wood (1) relevant in acquisition processes (initial perceptions of wood before moving in) from the meanings developed in the experience-based (2) appropriation and appreciation processes. Furthermore, the topics brought up by the interviewees were grouped into themes including (i) aesthetic and well-being, (ii) practical and (iii) technical and ecological qualities of wooden material, to illustrate the main discussion points (see Table 2).

4.1 | Acquisition of a new wooden home: Initial perceptions towards wood

After purchasing their new homes but prior to moving in, the interviewed future homeowners did not have major expectations towards the wooden materials of their homes. We should note that the developer did not overly market wood as a structural material of the building nor did the interviewees pay much attention to the building material, perhaps as they feel they cannot affect the structural material in a multi-family home (see Høibø et al., 2015). Location, affordability, functionality and newness were the most important factors mentioned, yet, certain new homeowners considered wood a quite positive feature of the building they were about to move into (see also Gold & Rubik, 2009).

All the interviewees have their images concerning wood as a construction material. As pointed out by previous literature, consumers assign several meanings to wooden materials. For example, as found by Karjalainen (2002) and Gold and Rubik (2009), softness, cosiness and warm ambiance are positive properties that consumers relate to wooden materials. Our interviewees share these views and describe them further:

> *- - the cleanliness, softness, quietness/ambiance (sounds such as clatter and creaks) of wood belong to it… I have to admit that I am a bit bored with the hard and cold feeling of concrete—Interviewee 2, first round*

> *So a log house would be like that, connected to a lot of good memories. Like as a kid when we were at the summer cottage and we were tarring the [wooden] boat and all. Such olfactory and visual memories come to mind - - they [wooden houses] do have their own special feeling—Interviewee 3, first round*

Memories and experiences, such as the visual appearance, soundscape and smell of wood and wooden buildings, along with experiences with other materials, play a significant role in creating consumer perceptions (Høibø et al., 2018). This is to be expected, as traditions and practices are known to shape the meanings people give to goods and experiences (Warde, 2005, 2014). Wood material and artisanship are a part of Finnish tradition, and using wood is respectful towards Finnish nature and the country, as described by certain interviewees. The interviewees felt that wood may be used in many applications in a home, which also shows the tradition of wood use being deeply woven into the culture. In fact, most had chosen wood-like flooring and wooden furniture to decorate their homes (Hakala et al., 2015), and some residents described their dream home to be a single-family home made of wood or logs.

Furthermore, wood was described as a natural material, which seems to connect to perceptions concerning the well-being benefits of wood and the healthiness and breathability of wood constructions. Healthiness of wood was also connected with its sensitiveness to moisture especially during the construction phase, which may cause health problems, as illustrated in the following:

> *Yes, I have this image that it [wood material] would be healthier, but then again, has it been badly soaked during*

TABLE 2 Consumer perceptions and experiences of wood as a building material

Properties of wood as a building material	Initial perceptions before moving in (guiding acquisition)	Experiences after one year of habitation (from appropriation to appreciation)
Aesthetic and well-being properties	• Natural, soft, warm, cosy, fragrant, clean; beautiful and sympathetic • Traditional Finnish material • Creates an old-fashioned cottage feeling if used too extensively as an interior material • Good indoor air quality, breathable, fresh	• Soft and "warm" material • Inviting wooden façade, homely • Would be nice to have wood visible also within the apartment; on the contrary, difficult to visualize a modern look with wood • No mentioned issues with indoor air
Practical properties	• Soft; easy to work with and modify, on the contrary, may wear out quickly (e.g., staircase) • Liveable • Versatile; applicable for many uses • Does not echo	• Easy to mount furniture and paintings on the walls • Floor vibrates easily • 'Wooden' sounds (cracks and pops) • Swelling/shrinking of wood material; difficult to close doors, rising skirting boards • Pleasant soundscape; no echoes
Technical and ecological properties	• Cold; insufficient thermal insulation properties • Sensitive to moisture/mould • Fire safety; risk, but methods to prevent exist (e.g., sprinklers) • Surface treatments may enhance durability • Renewable, ecological material. Low carbon footprint. Low energy need in production	• Increased electricity bill due to lower insulation • Fire risk should be considered, e.g., with fire alarms and extinguishers • Visible fire prevention: heavy and noisy fire door • Wooden façade and staircase require maintenance in the future • Treatment of wood increases durability, but makes recycling more challenging

> *the construction phase, how well has it been covered and how well will the building breathes when it is complete, if it is too [air]tight then it is as bad as any other building—Interviewee 7, first round*

Additionally, certain interviewees mentioned that the indoor air problems caused by wet concrete could be avoided with wood construction. However, it is noteworthy that the residents connect possible moisture- and indoor air-related issues to building materials and methods in general, which indicates that their concerns are more prevalent. For example, research by Annila, Lahdensivu, Suonketo, Pentti, and Vinha (2018) confirms this perception to be true; all load-bearing building materials may be damaged by moisture and cause indoor air problems. Similar results were found regarding fire safety: while earlier quantitative studies (Gold & Rubik, 2009; Hu et al., 2016; Larasatie et al., 2018) indicate that residents are uncertain of the fire resistance of wood, our results show that the residents may also rationalize their feelings towards the topic:

> *It is a modern building, I think they have safety locks [in case of fire] … there will be fire alarms and everything. … I do not know if it is a risk per se … It will burn as any other building…—Interviewee 3, first round*

While the interviewees discuss the possibility of fire when asked about the safety of wood as a construction material, they concurrently acknowledge that other construction materials carry the same risk. As interviewee 3 describes, several technical methods and appliances are used to prevent fires in wooden buildings. Sprinklers, for example, are mandatory in Finnish multi-storey wooden houses with more than two storeys. Such technical measures together with increased knowledge concerning fire design and proper fire services enable the safe use of wood in buildings (Östman, Brandon, & Frantzich, 2017).

Further, the interviewees connect the softness and naturalness of wood to durability and stability, voicing hesitance towards high-rise wooden constructions and how these structures endure the bending of processed wood materials (Gold & Rubik, 2009; Hu et al., 2016). Yet, they also mention tall wooden constructions to be "a new trend" and "a Finnish innovation". The following interviewee discusses the newness and trendiness of wood construction in connection to its environmental aspects:

> *Yes, I think [a wooden building is ecological] because trees grow back and if the house is demolished it won't probably go to terrible waste. And isn't the carbon footprint of these wood buildings smaller, so that is [another factor]. And probably it [wooden construction] will become a building style of the future because building concrete brick houses went all crazy [became very popular] at some point—Interviewee 3, first round*

Additionally, some interviewees were wondering whether the production of wood for construction could be less energy demanding than concrete manufacturing, as they considered wood to be lighter, and thus, easier to work with. However, one consumer (Interviewee 1) had also doubts about the energy efficiency of wooden houses

questioning their thermal insulation properties. While the Finnish Government has promoted wood construction mainly based on its environmental merits, the interviewees only rarely spontaneously began discussing the environmental aspects without the interviewer enquiring about them directly. Additionally, the environmental properties of the building, such as the heating source or use of renewable energy, were not something the interviewees listed as top priorities they were interested in when seeking their home (see also e.g., Gold & Rubik, 2009). Furthermore, wooden materials as carbon storage were not emphasized in any of the interviews, despite the topic being frequently brought up by professionals in earlier studies (e.g., Toppinen, Röhr, Pätäri, Lähtinen, & Toivonen, 2018).

4.2 | From appropriation to appreciations: Everyday living in the new wooden home

After a year of habitation, the interviewed homeowners have had some time to become accustomed to the wooden material. While they state that living in a wooden building is very similar to living in any other building, even after only one year they were able to provide examples of how wood has affected their homemaking. The new wooden home provides homeowners with practical purposes, yet, also pleasure and aesthetic judgements (Evans, 2019).

Visual aspects related to the material mainly included the wooden façade, staircases and balconies, which the homeowners considered pleasant and cosy-looking. The presence of wood within the apartments was observed in other ways:

> *The materials have been good, not hard or cold so to speak, because they are wooden… and the sound, it doesn't echo as much… and it's nice to hang pictures and shelves on the walls, as they are not concrete. You can just use a small drill—Interviewee 2, second round.*

The interviewee discussed the softness of wood not only through the soundscape, which he had anticipated before moving in (see quote from Interviewee 2, first round), but he had now also observed that the technical properties of wood also affect its practical usability (see also Table 2). This makes it easier for him to make his own alterations to the apartment and express his own way of living. Interviewee 1, who perceived wooden homes to be cold and draughty, now described an increase in her electricity bill. She assigned this at least partly to the perceived poor thermal insulation of the wooden building. The interviewees also discussed other aspects related to the daily usability of wooden materials in the apartments:

> *The floor vibrating when the washing machine is on, like now for example, is what irritates me perhaps the most. And if it's really quiet when you are here, such as during the day, a washing machine [running] in a neighbour's apartment will also create vibration. … The wood "living" [expanding and contracting movements] is also irritating, for example the other bedroom door will not close properly, or it closes but sticks to the upper edge… These [skirting boards] have risen to where there is now a crack—Interviewee 6, second round*

The "liveliness" of the building was also described to appear as clicking sounds, which occur when the wood swells and shrinks due to changing air humidity. While the sounds seemed to be a minor inconvenience, or even an appreciated proof that the house itself is also alive, the issues with the doors and skirting boards are likely to cause measures for improving the situation. Some issues may be connected to the novelty of the construction methods, in addition to the "liveliness" of the material itself. Additionally, the novel wood-based wall boards used inside the homes proved to be impractical, with difficulties in cleaning the surfaces; splashed coffee or muddy handprints could not be removed from the walls without leaving marks. The homeowners may need to learn to live with this issue, as changing the wall boards in all the homes may not be possible, as they described.

The residents discussed other usability annoyances as well, such as a heavy fire door in the outside corridor, which creates noise and vibrations when closing. The fire door seemed to be the only noticeable reminder of the fire safety measures to the homeowners. They had neither received any instructions on whether to consider the fire safety of the building any differently because of the wood material nor had they been worrying about fires. The lack of visible wooden details in the apartments was a property that the homeowners did not connect with the fire safety regulations. These regulations have since been loosened and now allow a certain amount of wood left visible without covering it with fire-preventing wallboards. Some homeowners likely find this pleasing, as they expressed their interest in having minor details, such as wall panels, remind them about the wooden structure. However, certain interviewees had their reservations:

> *Maybe it is connected with having slightly dated beliefs about what having wood inside actually means… I cannot picture what it [having visible wood] means in a new home like this—Interviewee 7, second round*

Wood as an interior material reminds her of yellowish, worn wall panels, while she prefers the current trend of lighter colours, which is also applied to her new apartment. According to Nyrud and Bringslimark (2010), many wooden materials used in the interior may be considered an unpleasant living environment. A happy medium should thus be found to the amount of wood visible in interior applications.

The homeowners had yet to see how the wood material endures the long-term wear-and-tear of everyday living, as only one year had passed. However, they imagined that wood requires more maintenance (e.g., painting) than other materials (see also e.g., Larasatie et al., 2018), especially when exposed to the outside elements such as rain and direct sunlight. A homeowner verbalised her thoughts on the matter:

> *Of course, [wood as a construction material] is not everlasting, but what is. Those stairs will probably need to be renewed at some point…. Also connected to [the healthiness of wood], the [wood] surface needs to be treated with quite a lot of chemicals and paints to make it durable. Of course [wood] is from nature…but when you have to treat it to make it durable, that is another side to the matter—Interviewee 5, second round*

She points out that all materials require maintenance, which was also mentioned by another homeowner, who further stated that the maintenance procedures may differ from for example those in a brick building, but if done early enough, the building should be as durable as any other building (interviewee 7, second round). While interviewee 5 recognizes that the treatment may increase the durability of the wood material, and thus, reduce the amount of required maintenance (e.g., Larasatie et al., 2018) and lengthen the material's lifetime, she voices her concerns towards how the treatment affects the naturalness of wood. Her concerns were shared by the other residents, who discussed the potential reductions in healthiness and eco-friendliness of treated wood along with the problems that wood treatments may cause for recycling at the end of the building's lifecycle. At this point, none of them mentioned any positive or negative experiences regarding the indoor air quality in their apartments.

Finally, while most Finnish people have some experience of living with wood, such a tall multi-family building solution differs from these previous experiences and causes surprises for some residents (namely the "liveliness"). The interviews imply, however, that residents with nostalgic memories of wooden living are more tolerant towards such surprises and also tend to share their memories and gained experiences with others, as described by an interviewee:

> *Every time someone asks where I live, I say that we have a wooden balcony access house. … I am so happy to say that this is a wooden building—Interviewee 7, second round*

Yet, she or the other interviewed residents did not have much evidence-based knowledge of wood as a construction material (e.g., Gold & Rubik, 2009; Høibø et al., 2015; Larasatie et al., 2018). Thus, living in a wooden house deepens their understanding of the material itself. Taller wooden buildings, with more than two floors, still seem like a distant idea for the homeowners, but none of them declared to be against them––they just lacked knowledge concerning them. The interviewees would appreciate to know more about the fire safety and indoor air quality properties of (taller) wooden buildings along with the contents of the wooden elements used to build their homes. However, this theme goes beyond the scope of this analysis.

5 | CONCLUSIONS

This study elaborated existing research on consumers' perceptions of wood (e.g., Gold & Rubik, 2009; Høibø et al., 2018) as a building material by extending the understanding of homeowners' gained experiences of living in wooden homes. Consumers appreciate the aesthetic and well-being qualities of wooden materials (Lähtinen et al., 2019), such as the warm, homely look and ambiance. The study further indicates that these consumer appreciations are connected to meanings and memories created in traditional wood cottages and log houses, along with the conventions of using and being around wood (artisanship). Concerning the technical and ecological aspects, wood is regarded primarily as a natural raw material. The homeowners elaborate naturalness with descriptions, such as pure and uncontaminated, which they see to result in material healthiness. However, naturalness was also seen as a weakness in terms of durability, as untreated wood is susceptible to daily wear. The juxtaposition of natural and treated wood was intriguing: while the former was seen as environmentally friendly (easier to recycle) and healthy, the latter is required for increased durability and safety. Related to safety, our results indicate that fear of fire was not as unambiguous as previous survey studies (e.g., Hu et al., 2016; Larasatie et al., 2018) have presented, but with proper measures and normal caution the homeowners do not find their wooden apartments to be at any greater risk.

Although the homeowners initially found living in the wooden building to not differ from living in any other building, the practicality and usability of wood became evident as they described their experiences. This viewpoint, which has not been previously studied, was enabled by our focus on appropriation processes (Evans, 2019). Our study suggests, for example, that naturalness and softness the interviewees assigned to wood material were realized as a "liveliness" (annoyances including vibrating floors, wood shrinking and swelling due to changes in air humidity, causing e.g., doors to not close properly), a pleasant soundscape and as the ease of mounting shelves on the walls. On the contrary, the devaluation most discussed with consumers, namely fire safety, did not worry the interviewed homeowners, but was mainly visible as a heavy fire door. Such properties appeared to surprise the homeowners, which may indicate the unfamiliarity of wood as an urban construction material (see also Høibø et al., 2018). As the use of wood in urban areas increases, information from consumer experiences and practical issues gains importance: understanding the appreciations and devaluations of wooden materials only provide a partial view into how it may be received by consumers. For example, the environmental friendliness used to promote wooden buildings does not currently resonate with consumers when choosing a home because they consider more practical matters, such as the layout. Thus, understanding the practical properties of a wooden home and providing consumers with information on such practicalities and related benefits, such as an echoless soundscape for relaxation and the ease of personalizing your own home, may facilitate an increase among consumers in the acceptability of wood use also in urban applications.

Our study has limitations. We should note that one year is a rather short time. More profound changes between initial perceptions and experiences may require more time to develop and are, therefore, outside the scope of this study. Furthermore, the case building has two storeys, whereas homeowners in taller buildings may bring up additional topics. Our approach focused on the importance of different wooden material characteristics

in residents' expectations or perceptions of their apartment building. There is thus room for other approaches when analysing the merits of wood in the general building sector (see however, Høibø et al., 2015; Luo et al., 2017 for specific contexts and segments) and more systemic approaches that take into account the roles of various actors (Macrorie et al., 2015), especially how professional and consumer appreciations meet. An interesting follow-up question would also be how to better integrate consumer concerns and appropriation of the material itself in wooden multi-storey building projects, not only after these projects have been completed and the buildings are ready to be moved into.

We conclude that the everyday usability and durability of residential materials are highly important for consumers, while environmental sustainability (e.g., low carbon footprint) and technological aspects (e.g., thermal insulation) remain abstract even after residents have gained experiences of living in a wooden building. However, the aspects are intertwined. While the technical development of multi-story wooden buildings has been vast, it has not yet focused on solving residents' daily issues related to housing. If we want to guide consumption processes of housing towards sustainability, the usability of the home should be taken into account in design and engineering as well as regulations and policies. In the light of our study, this means, for example, that heavy fire doors should be made easy to open in daily use, issues caused by the liveliness of wood (swelling and vibration) should be solved, and treatment of wood should be made with procedures that maintain the recyclability of the materials. Moreover, urban wooden buildings could manifest the positive features of wood: use of wood on the surfaces should be increased to create pleasant soundscapes (also in non-wooden buildings). While sustainability and physical properties of wood are being highlighted in general discussion on wood construction at the moment, it would seem beneficial to communicate these issues with the consumers by connecting them to topics that are more meaningful to the consumers on an everyday level, such as the local production and nostalgic aspects of wooden materials as well as the pleasant ambiance of wooden living.

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APPENDIX 1

STAGE 1 INTERVIEWS

BACKGROUND INFORMATION

- Gender; age; education; occupation; household size, number and ages of children, pets; current abode

THEME 1: PREVIOUS HOMES AND ISSUES VALUED IN HOUSING

- Where are you originally from (city/village/rural region)? How would you describe your childhood home?
- What issues are important to you when it comes to living and your abode?

THEME 2: CHOOSING THE APARTMENT AND MAKING THE PURCHASE DECISION

- How did you end up purchasing this particular apartment? Name 3–5 most important criteria.
- Where did you find information about this apartment?
- What in the marketing material made you interested in this apartment? How was the construction material (wood) communicated in the marketing material?
- Did other people affect your purchase decision? Who and how?
- How do you feel about the purchasing process as a whole? How did you experience the service?

THEME 3: CHARACTERISTICS OF THE APARTMENT AND THE NEIGHBOURHOOD

- How would you describe your new apartment and its neighbourhood?
- What are the most important characteristics of a good neighbourhood?
- What is your dream home (what kind of building, area, and apartment)?

THEME 4: PERCEPTIONS ON WOODEN MATERIALS

- What images and perceptions arise when you think about wood? Are they positive or negative?
- How do you perceive wood as a construction material (durability, strength, aesthetics, quality, reputation etc.)? Which construction material do you consider the best? Why?
- What kind of uses do you think wood is most suitable for when considering apartments/houses? Where should wood not be used in an apartment/building?
- Is wood more expensive than concrete? Would you pay more for wood as a construction material? E.g., if two otherwise similar buildings were of wood/concrete?
- What do you think about health issues in connection to using wood (as a building material) in apartments/houses? E.g., indoor air quality.
- What do you think about wooden multi-storey buildings, would you move into one? Why?

THEME 5: NEEDS AND EXPECTATIONS OF THE RESIDENTS

- Were you able to express your needs and wishes during the planning/construction process? How? Would you be willing to pay extra to be able to tailor something according to your needs?
- What do you expect from your new apartment (incl. the interior, exterior, neighbourhood, yard)?
- How/where do you expect to see wood within the apartment/in the building overall? Why?
- Where would you specifically like to see/feel/know that wood exists in the apartment/building? Why?
- Where you would not like to see/have wood? Why?
- What do you expect from the energy solutions of the apartment/building? Why?
- What kind of expectations/thoughts do you have about safety issues related to wood?
- What kind of a house/apartment is the one where you would like to live when you are retired? Why?

THEME 6: CONSUMER PROFILE

- How would you describe yourself as a consumer? Is there something that you would like to change or develop regarding this, and what might it be? Why?
- How is your position regarding environment? Do you consider yourself an environmentally aware person and consumer?

APPENDIX 2

STAGE 2 INTERVIEWS

BACKGROUND INFORMATION

- Age; occupation; education; size of family, who belongs to your family (children, their ages, any pets?)

THEME 1: EXPERIENCES OF MOVING INTO AND LIVING IN THE BUILDING

- In your own words, please describe the steps included in the home purchase and moving processes: where did everything begin (why a new home etc.) and what happened before you were able to move into your new home?
- How would you describe your apartment and its surroundings? Have they met your expectations?
- Are you happy with the material choices you made?
- Have you enjoyed your new apartment and the neighbourhood compared to the previous ones you lived in?
- Are you planning on moving now? If yes, why?

THEME 2: EXPERIENCING WOOD

- Day-to-day wooden living
  - Can you see/ feel wood in your current apartment? How can you detect that is a wooden building (visual ques, other ques)?
  - Have you noticed any characteristics that wood brings to daily living? (Sounds, temperature, sprinklers, fire doors, cleaning etc.)
  - Has wood required maintenance from you or have you otherwise had to take it into consideration in your daily life? (Correct cleaning agents etc.)
  - Do the mentioned issues correspond with your expectations or have you encountered surprises?
  - Should wood be used more/ less? Why?
- Wood as a construction material
  - What are you experiences/perceptions on wood as a construction material, when regarding its safety (e.g., fire safety), healthiness (e.g., indoor air quality), durability (longevity, need for maintenance) and environmental sustainability?
  - Would you be willing to pay more for wood as a construction material (if there were two otherwise identical apartments, one made of wood and the other of concrete)
  - What would you like to know more about regarding wood as a construction material? From what sources?
  - Would you be willing to move to a wooden multi-storey construction (higher than two floors)?
- Sharing experiences
  - Have you discussed with, e.g., your friends and family members that your home is built from wood/has more wood than normal?
  - Do visitors pay attention to the material?
  - Have you shared you experiences about so-called wooden living? Where, to whom? What kind of experiences?

THEME 3: VOICE OF THE RESIDENT

- Are there any issues in the apartment or the neighbourhood that you are unhappy with and you would like to change/affect? Have there been any problems/repair needs?
- Have you had a possibility to affect your apartment/neighbourhood? In such a situation, have you yourself contacted someone or how has the communication taken place?
- How about communication in the other direction, e.g., through questionnaires directed to the residents? With whom (e.g., developer, real estate manager)? Whose job is it to consider the residents' needs?
- As a homebuyer, during which stage and how would you like to take part in construction projects?